Falco
Flight Test
Cards
These flight test cards were prepared by Al Aitken for the initial flight testing of Al Dubiak’s Falco.

We are making these available so that others may use these as a guide of how a flight test program should be designed.

Many thanks to Al Aitken for his contributions to the Falco Flight Test Guide and for all he has done to advance the safe flight testing of homebuilt aircraft.

Alfred P. Scott  
President  
Sequoia Aircraft Corporation
Things to bring

1. Licenses
2. Logbooks
3. Headset
4. Kneeboard
5. Hat
6. Sunglasses
7. Flashlight
8. Stopwatch
9. Flight bag
Do/check these things prior to any testing.

1. Airport area check
2. Takeoff zone
3. Landing zone
4. Runway condition-slope, length
5. Weather check
   a. 5,000/5 minimum required for flight test
6. Aircraft weight and balance
   a. Double check method and figures
7. Debrief on all engine problems to this point and what was done to solve them
8. Brief with owner and EAA Flight adviser all ground tests and first flight test
9. Preflight aircraft thoroughly
10. Review brake conditioning results
Before Starting Engine

1. Fuel/Oil Qty…………..Checked
2. Load………………..Secured
3. Controls……………Checked
4. Seats……………Adjusted
5. Seat belts…………Fastened
6. Parking brake……On
7. Canopy…………….Closed/Locked
8. Landing gear switch…Down
9. Gear motor knob …Engaged
   a. Disengage for first flight
10. Fuel selector………Front
11. Master switch……On
12. Alternator switch …On
13. Gear down light……Check
14. Avionics switch……Off
15. Voltmeter…………..Check 14v
16. Fuel quantity……….Check
17. Switches……………Off
18. Circuit Breakers …In
19. Altimeter………………Set
Engine Start (Cold Start)

1. Alternate air..............Off
2. Throttle..................1/4”
3. Prop......................Full
   Increase
4. Mixture..................Rich
5. Aux. Fuel pump.........On
   (Bump)
6. Aux. Fuel pump.........Off
7. Ignition..................Start
8. Throttle..................900 rpm
9. Oil Pressure..............Green

Engine Start (Warm)

1. Alternate air..............Off
2. Throttle..................1/4”
3. Prop......................Full
   Increase
4. Mixture..................Lean
5. Ignition..................Start
6. Mixture..................Rich
7. Throttle..................900 rpm
8. Oil Pressure..............Green
Warm-Up/Taxi

1. Throttle…………….1000-1200 rpm
2. Ammeter……………Positive
3. Oil pressure………..Green
4. Fuel pressure………..Green
5. Parking Brakes ……Released
6. Brakes………………Checked

Run-Up

1. Mixture……………..Rich
2. Prop…………………Full increase
3. Throttle……………..1200
   a. Suction…………..Green
   b. CHT………………Green
   c. Oil temp…………Green
   d. Oil press…………Green
   e. Ammeter………….Positive
   f. Fuel Gauges……..Check
   g. Fuel press…………Green
   h. Voltmeter…………14v
4. Throttle………………1750 rpm
   a. Mag check………..75-100 drop
   b. Mag diff…………….50 rpm
   c. Prop………………Cycle
   d. Alternate air………Check
   e. Other fuel tank ……Check
Before Takeoff

1. Canopy .................. Closed/Locked
2. Seat belts ............... Fastened
3. Flaps ..................... 15 deg.
4. Flight controls .......... Check
5. Elevator trim ......... Neutral
6. Fuel selector .......... Front tank
7. Aux fuel pump ....... On
8. Turn coord .......... On
9. Strobes ................. On
10. Nav. Lights ........... On
11. Prop ..................... Full increase
12. Mixture .................. Rich
13. Directional gyro ...... Set
14. Oil Temp ............... Green
15. Warning lights ...... Green only
16. Clearance .............. Received
17. Parking brake ....... Released
Normal Takeoff

1. Parking brake ..........Released
2. Landing light..........On
3. Throttle...............Full open
   a. Smoothly
4. Right rudder..........Counter torque
5. Rotate...............60 KIAS

Climb

1. Gear....................Up
   a. Down for first flight
2. Airspeed...............85 KIAS
3. Flaps....................Up
   a. Raise at 1,500 ft. AGL
4. Turn.....................Initiate
   a. Shallow climbing turn
   b. Remain over field
5. Aux fuel pump.........Off
   a. Off at 2,000 ft. AGL
6. Engine Inst..............Check
7. Warning lights.........Green only
8. Landing light.........Off
Cruise

1. Level off..................3,500 ft AGL
2. Manifold press.........Set
   a. Adjust for 125 KIAS
   b. Gear remains down
3. Prop......................2,500 rpm
4. Mixture..................Rich
5. Trim.......................125 KIAS
6. Warning lights........Green only
7. Fuel qty..................Check

Descent

1. Mixture..................Rich
2. Prop.......................Full increase
   a. Smoothly
3. Manifold press.........Reduce
   a. 20 inches for shallow descent
4. Warning lights.........Green only
Landing Approach

1. Fuel selector…………..Front tank
2. Mixture………………..Rich
3. Prop……………………Full increase
4. Gear…………………Down
   a. Green light on
5. Landing light…………..On
6. Flaps…………………..20 deg.
   a. Below 97. 5 KIAS
7. Aux. Fuel pump………..On
8. Airspeed………………..85 KIAS
   a. Initial approach
9. GUMP……………………..Check
10. Airspeed……………….74 KIAS
    a. Over the fence

Go Around

1. Throttle………………..Full open
   a. Smoothly
2. Pitch……………………8-10 deg.
3. Airspeed………………..85 KIAS
4. Gear……………………Up
   a. Down for first flight
5. Flaps……………………Up
   a. Raise at 1,500 ft. AGL
6. Aux. Pump……………..Off
After Landing

1. Flaps…………………….Up
2. Aux. Fuel pump……….Off
3. Landing light…………Off

Parking/Shutdown

1. Parking brake………..Set
2. Avionics switch……….Off
3. Prop…………………….Full increase
4. Throttle………………1,200 rpm
   a. 20 seconds
5. Mixture……………….Lean
6. Ignition switch………..Off
7. Landing Light…………Off
8. Nav. Lights……………Off
9. Strobe lights………….Off
10. Turn coord…………….Off
11. Alternator switch…..Off
12. Master switch………..Off
13. Canopy………………Open
Configuration: Gear down, Flaps 15 deg
   Slow taxi, light braking to runway end
   Traffic watch/Unicom call
   Runway Lineup
   Feet off brakes/Slowly add partial power
   Accelerate to desired taxi test speed
   Throttle ease to idle
   Light brakes to slow taxi speed
   Exit runway

**Directional Control Tests**

Controls: Neutral
   Directional Control with Ruder & NWS

<table>
<thead>
<tr>
<th>Run</th>
<th>Tgt A/S</th>
<th>A/S</th>
<th>HQR</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20 KIAS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>40 KIAS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>50 KIAS</td>
<td></td>
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Comments:
### Aileron Control Test

Max Airspeed – 50 KIAS  
Full Left/Right Aileron from Zero Airspeed  
Elevator Neutral  
Slowly Accelerate from Zero Airspeed

<table>
<thead>
<tr>
<th>Run</th>
<th>Input</th>
<th>A/S @ Rise</th>
<th>Max A/S</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Left</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Right</td>
<td></td>
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</tr>
</tbody>
</table>

Comments:

### Elevator Control Test

Max Airspeed – 50 KIAS  
Full Aft Stick from Zero Airspeed  
Ailerons Neutral  
Slowly Accelerate from Zero Airspeed

<table>
<thead>
<tr>
<th>Run</th>
<th>A/S @ Rise</th>
<th>Max A/S</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
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</tbody>
</table>

Comments:
Runway:    Length:    
Field Elevation:    Temp:    

Takeoff:    Punch Clock  
Configuration:    Gear down, Flaps 15 deg  
                    Run-up & Takeoff Checklists-Complete  
Throttle smoothly to full  
Check Engine Instruments:

Manifold Press:    RPM:    

Rotate at 60 KIAS:    
Nose Attitude – 8 to 10 degrees up  
Actual Liftoff Airspeed:    

Comments:
Climb:
Airspeed – 85 KIAS
Configuration: Gear Down, Flaps up @ 1,500 AGL

Attitude for 85 KIAS

Gentle Climbing Turn
Remain Over the Airport
Climb to 3,500 ft. AGL

Manifold Press. RPM

Oil Press Oil Temp

EGT 1 3 CHT
2 4

Fuel Press

Comments:
Level off:
Altitude 3,500 AGL Minimum
Configuration: Gear Down, Flaps up
Throttle retard
Prop Full Increase
Mixture Rich
Airspeed – 125 KIAS maximum (gear down)
Remain Over Airport
Turns up to 30 Degrees AOB
Reversals

Manifold Press  
RPM  

Oil Press  
Oil Temp  

EGT:  1  
3  
2  
4  

CHE  

Fuel Press  

Comments:
Descents and Climbs:
Airspeed – 100 KIAS
Configuration: Gear Down, Flaps up

Manifold Press  RPM

Descents:
500 fpm:  Manifold Press.  
          RPM

1,000 fpm: Manifold Press.  
           RPM

Climbs:
500 fpm:  Manifold Press.  
          RPM

1,000 fpm: Manifold Press.  
           RPM

Comments:
**Slow Flight:**
Airspeed – 80 KIAS
Configuration: Gear Down, Flaps 20 degrees

<table>
<thead>
<tr>
<th>Manifold Press</th>
<th>RPM</th>
</tr>
</thead>
</table>

Turns up to 15 degrees AOB
Reversals

**Descents:**

500 fpm: Manifold Press.

<table>
<thead>
<tr>
<th>RPM</th>
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</thead>
</table>

1,000 fpm: Manifold Press.

<table>
<thead>
<tr>
<th>RPM</th>
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</table>

**Climbs:**

500 fpm: Manifold Press.

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<tr>
<th>RPM</th>
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</table>

1,000 fpm: Manifold Press.

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<tr>
<th>RPM</th>
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</table>

**Comments:**
Level Flight Engine Check:
Airspeed – 80 KIAS
Configuration: Gear Down, Flaps 20 Degrees

Manifold Press.  RPM

Oil Press  Oil Temp

EGT  1  3  CHT
     2  4

Fuel Press

Comments:

Spin Recovery Review:
1. Throttle to Idle
2. Stick Neutral to Slightly Aft
3. Rudder Full Opposite Rotation Direction
4. Neutralize Rudder when Rotation Stops
5. Smoothly Pull Out of Dive
**Approach to Stalls:**
Configuration: Gear Down, Flaps as Required
Decelerate Slowly to Buffet Onset Only

<table>
<thead>
<tr>
<th>Run</th>
<th>Flaps</th>
<th>Pwr</th>
<th>AOB</th>
<th>SW A/S</th>
<th>SW</th>
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<tbody>
<tr>
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<td>Idle</td>
<td>0 deg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
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</tr>
<tr>
<td>3</td>
<td>Up</td>
<td>Idle</td>
<td>30 L</td>
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<td>4</td>
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<td>30 R</td>
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<td>6</td>
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</tr>
<tr>
<td>8</td>
<td>20 deg</td>
<td>25/25</td>
<td>0 deg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>20 deg</td>
<td>Idle</td>
<td>20 L</td>
<td></td>
<td></td>
</tr>
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<td>10</td>
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<td>Idle</td>
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<td>20 deg</td>
<td>25/25</td>
<td>20 L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>20 deg</td>
<td>25/25</td>
<td>20 R</td>
<td></td>
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</tbody>
</table>

Expect Clean Stall at 65 KIAS

Expect Dirty Stall at 54 KIAS
Stalls:
Configuration: Gear Down, Flaps as Required
Decelerate Slowly to Full Stall
Recover Immediately

<table>
<thead>
<tr>
<th>Run</th>
<th>Flaps</th>
<th>Pwr</th>
<th>AOB</th>
<th>Stall A/S</th>
<th>Stall</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Up</td>
<td>Idle</td>
<td>0 deg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Up</td>
<td>25/25</td>
<td>0 deg</td>
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<td>3</td>
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<tr>
<td>4</td>
<td>20 deg</td>
<td>25/25</td>
<td>0 deg</td>
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</tbody>
</table>

Approach Stall Speed

x 1.3

Over the Fence Approach Speed:

Note: Type of Stall Warning
Degree of Warning
Airspeed at Warning
Controllability up to Stall

Spin Recovery:
1. Throttle to Idle
2. Stick Neutral to Slightly Aft
3. Rudder Full Opposite Rotation Direction
4. Neutralize Rudder when Rotation Stops
5. Smoothly Pull Out of Dive
Practice Landing Approaches:
Configuration: Gear Down, Flaps 20 Degrees
Make 2 Practice Approaches
Target Altitude: 2,000 ft. AGL
Initial Approach Speed 80 KIAS
Rate of Descent: 500 – 700 fpm, Power as Required
At 200 ft. Above Target Altitude Slow to:

Over the Fence Approach Speed: 

Go Around at 2,000 ft. AGL
Power – Full Throttle
Climb Airspeed – 85 KIAS, Flaps Up @ 2,500 ft. AGL

Comments:

Engine Check:
Airspeed – 80 KIAS
Configuration: Gear Down, Flaps 20 Degrees

Manifold Press.  
RPM 

Oil Press  
Oil Temp 

EGT 1  
3  
4  

Fuel Press 

Full Stop Landing:
Configuration: Gear Down, Flaps 20 Degrees
Complete Descent and Landing Checklists
Initial Approach Speed 80 KIAS
Power from Practice Approach Card
Slow to:

Over the Fence Approach Speed: ☐ ☐ ☐

Hold Power on in Flare
Ease Power Off to Touch Down
Hold Nose Off in Flare
Light Braking with Stick Aft

Complete After Landing and Parking/Shutdown
Checklists

Comments: